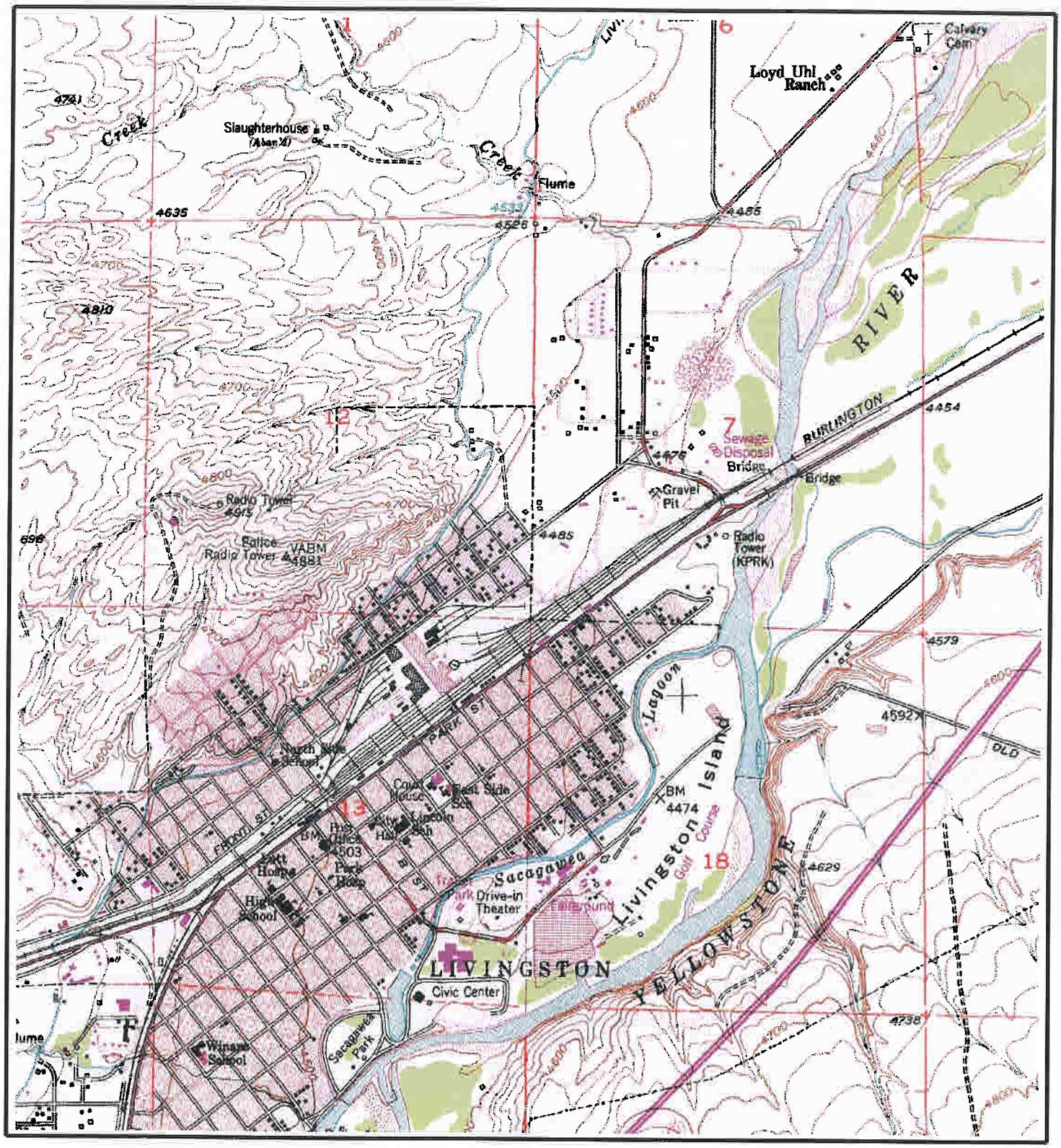
Figures



REFERENCE: USGS 7.5' TOPOGRAPHIC QUADRANGLE LIVINGSTON, MONTANA 1951 PHOTO REVISED 1981

Kennedy/Jenks Consultants

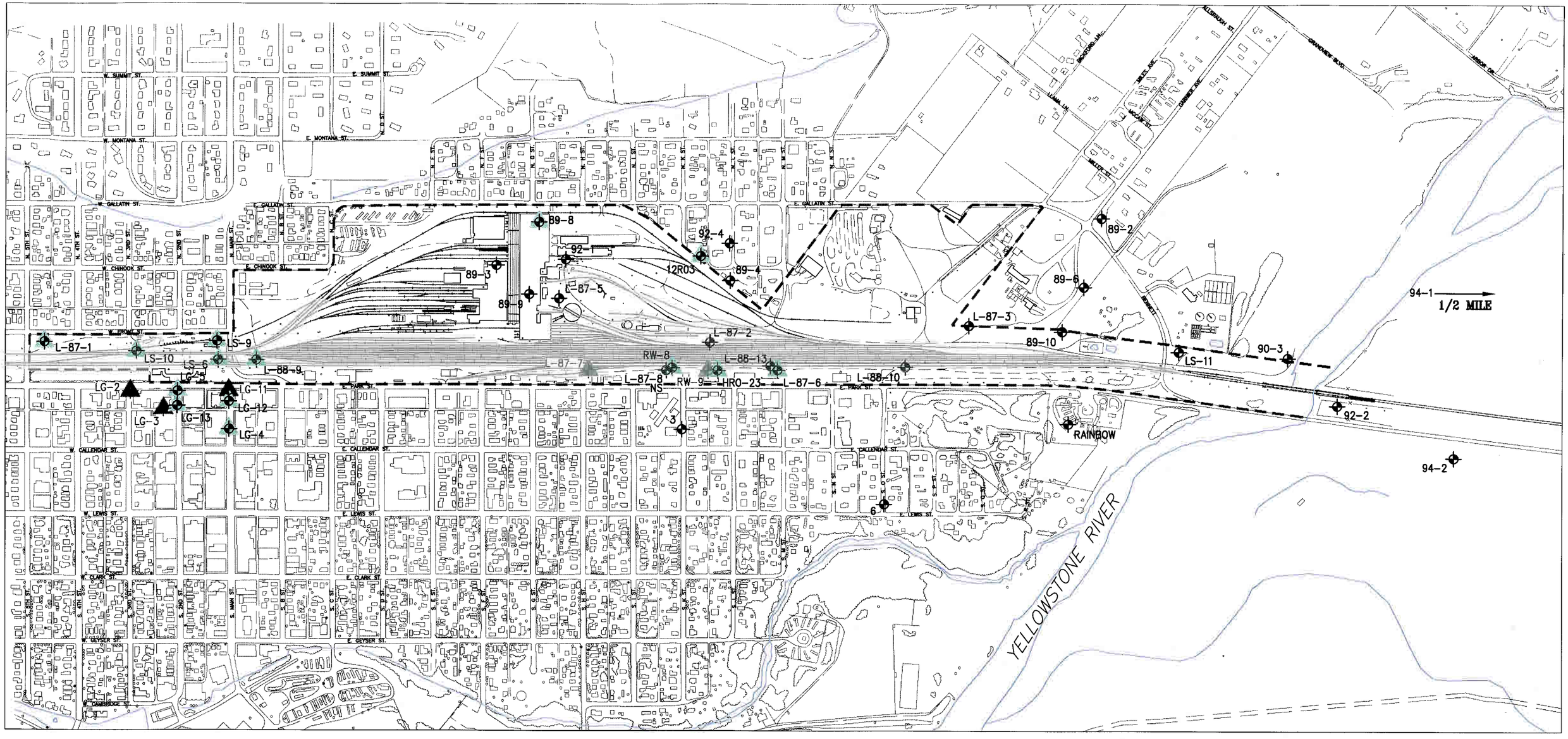
BNSF
LIVINGSTON RAILYARD
LIVINGSTON, MT

VICINITY MAP

0696021.16/ASR/FIGURE 1

3/06

FIGURE 1



LEGEND

L-87-5 ⊕ MONITORING OR PRIVATE WELL LOCATION

L-87-1 ⊕ MONITORING OR PRIVATE WELL LOCATION NOT PART OF GROUNDWATER SAMPLING NETWORK

– – – – – – LIVINGSTON RAILYARD BOUNDARY

NOTE:

1) "NS" DENOTES WELL NOT SAMPLED DUE TO PRESENCE OF LNAPL.
2) WELLS LG-2, LG-3, LG-11, RW-9, AND L-87-7 (SHADED IN GRAY) WERE TO BE SAMPLED IN MARCH 2005. NO SAMPLES WERE COLLECTED AS DESCRIBED IN SECTION 3.1.1.

BASEMAP SOURCE:
HORIZONS, INC. RAPID, SD (1989)

N

0 350 700
APPROXIMATE SCALE IN FEET

Kennedy/Jenks Consultants

BURLINGTON NORTHERN LIVINGSTON SHOP COMPLEX – LIVINGSTON, MT

GROUNDWATER SAMPLING LOCATIONS 2005

0696021.16/ASR/FIGURE 2

3/06

FIGURE 2

LEGEND

L-88-13 4467.76 — MONITORING, PUBLIC, OR PRIVATE WELL LOCATION AND WATER LEVEL ELEVATION (FEET ABOVE MSL)

4482 — APPROXIMATE POTENTIOMETRIC SURFACE ELEVATION CONTOURS BASED ON MEASUREMENTS TAKEN JUNE 2005.
INTERPOLATION BASED ON TRIANGULATED IRREGULAR NETWORK USING pc-TIN 3.4D (FEET ABOVE MSL)

CONTOUR INTERVAL = 2 FEET

N

0 400 800

APPROXIMATE SCALE IN FEET

BASEMAP SOURCE:
HORIZONS, INC. RAPID, SD (1989)

Kennedy/Jenks Consultants

BURLINGTON NORTHERN LIVINGSTON SHOP COMPLEX – LIVINGSTON, MT

POTENTIOMETRIC SURFACE CONTOURS JUNE 2005

0696021.16/ASR/FIGURE 3

3/06

FIGURE 3

LEGEND

L-88-13 4467.10 — MONITORING, PUBLIC, OR PRIVATE WELL LOCATION AND WATER LEVEL ELEVATION (FEET ABOVE MSL)

4482 — APPROXIMATE POTENTIOMETRIC SURFACE ELEVATION CONTOURS BASED ON MEASUREMENTS TAKEN NOVEMBER 2005.
INTERPOLATION BASED ON TRIANGULATED IRREGULAR NETWORK USING pc-TIN 3.4D (FEET ABOVE MSL)

CONTOUR INTERVAL = 2 FEET

N

BASEMAP SOURCE:
HORIZONS, INC. RAPID, SD (1989)

0 400 800
APPROXIMATE SCALE IN FEET

Kennedy/Jenks Consultants

BURLINGTON NORTHERN LIVINGSTON SHOP COMPLEX – LIVINGSTON, MT

POTENTIOMETRIC SURFACE CONTOURS NOVEMBER 2005

0696021.16/ASR/FIGURE 4

3/06

FIGURE 4

FORMER FREIGHT TRAIN REFUELING AREA

FORMER DEPOT REFUELING AREA

W. GALLATIN ST. | E. GALLATIN ST. | N. B ST. | N. C ST. | N. E ST. | N. F ST. | N. G ST. | N. H ST. | N. I ST. | N. K ST. | N. L ST. | N. M ST. | N. N ST.

N. 3RD ST. | N. 2ND ST. | MAIN ST. | W. CHINOOK ST. | E. CHINOOK ST.

W. FRONT ST.

W. PARK ST. | E. PARK ST.

W. CALLENDER ST. | E. CALLENDER ST.

S. 3RD ST. | S. 2ND ST. | S. MAIN ST. | S. B ST. | S. C ST. | S. D ST. | S. E ST. | S. F ST. | S. G ST. | S. H ST. | S. I ST. | S. K ST. | S. L ST. | S. M ST. | S. N ST. | S. O ST. | S. P ST. | S. Q ST.

B STREET

W. LEWIS ST. | E. LEWIS ST.

89-8 0.00
92-4 0.00
89-7 0.00
92-1 0.00
89-3 0.00
89-4 0.00
89-9 0.00
L-87-5 0.00
95-1 0.00
L-87-3 0.00
HRO-9 0.03
HR-2D 0.00
HR-2W 0.10
LB-4 0.17
RW-5 0.00
RW-3 <0.01
HRO-13 0.00
RW-1 0.00
LPZ-100 0.00
HRO-10 0.00
L-87-2 0.00
RW-6 0.54
RW-2 0.00
LS-6 0.00
L-88-9 0.00
L-87-4 0.00
HRO-6 0.20
HRO-7 0.14
RW-7 <0.01
L-87-7 0.32
RW-4 0.41
RW-9 0.00
92-3 0.00
HRO-20 0.00
HRO-24 0.00
L-87-8 0.09
HRO-21 0.09
HRO-22 Sheen
HRO-23 0.00
L-88-13 0.00
L-88-10 0.00
90-2B 0.00
LG-11 0.00
LG-12 0.00
1 0.00
2 0.00
3 0.00
4 0.00
5 0.00
6 0.00

LEGEND

ESTIMATED EXTENT OF MEASURABLE APPARENT LNAPL THICKNESS

L-87-7 0.32 — MONITORING OR PUBLIC WELL LOCATION AND APPARENT LNAPL THICKNESS (FEET)

NOTE:

1) THE IDEALIZED LNAPL DISTRIBUTION SHOWN WAS INFERRED BASED ON MONITORING DATA FROM JUNE 2005. AREAS WITH NO MEASURABLE LNAPL MAY OCCUR WITHIN THE MEASURABLE LNAPL AREA DEPICTED.

N

0 200 400

APPROXIMATE SCALE IN FEET

BASEMAP SOURCE:
HORIZONS, INC. RAPID, SD (1989)

Kennedy/Jenks Consultants

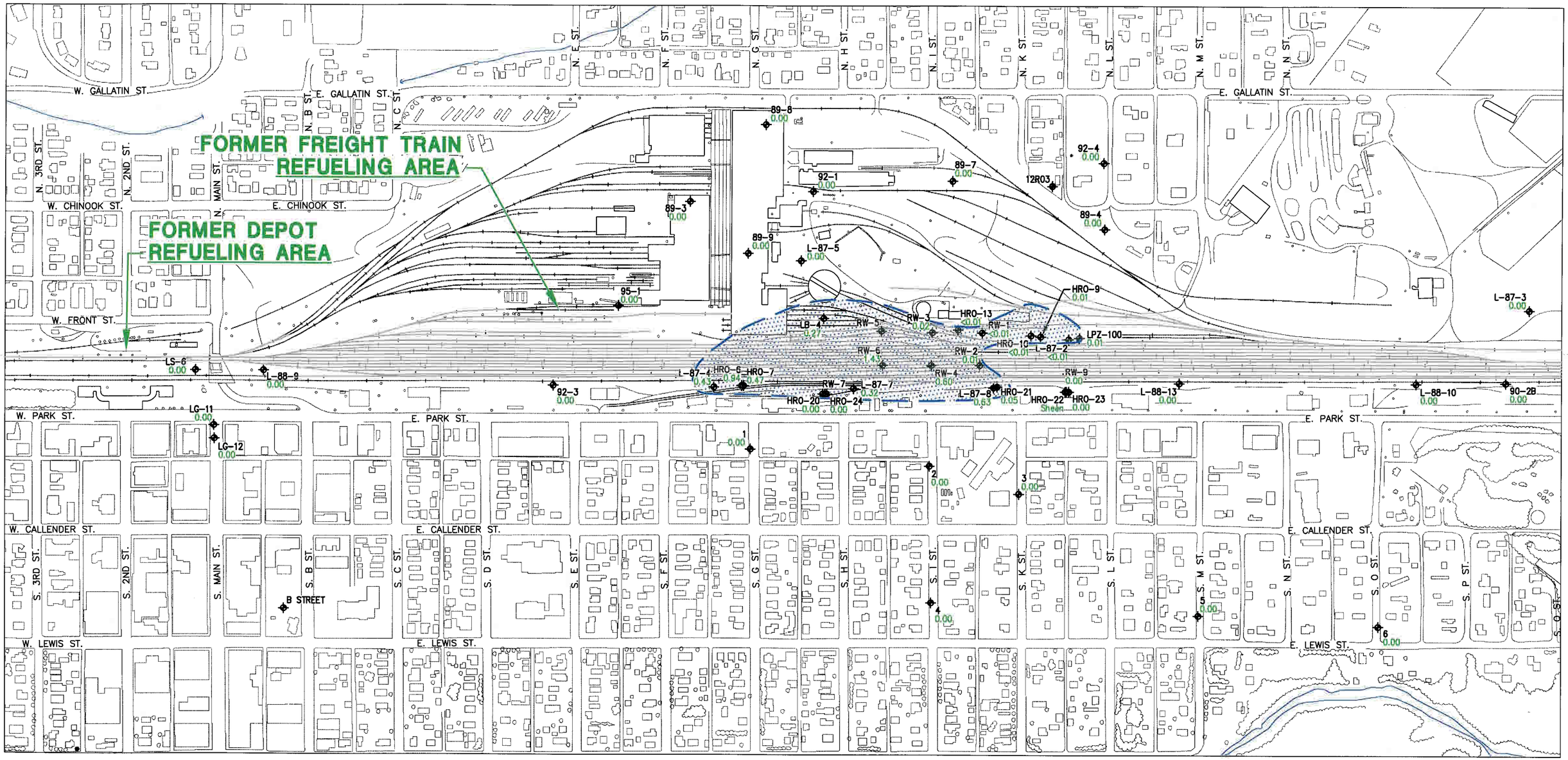
BURLINGTON NORTHERN LIVINGSTON SHOP COMPLEX – LIVINGSTON, MT

LNAPL MEASUREMENTS AND DISTRIBUTION - JUNE 2005

0696021.16/ASR/FIGURE 5

3/06

FIGURE 5



LEGEND

ESTIMATED EXTENT OF MEASURABLE APPARENT LNAPL THICKNESS

L-87-7 0.32 — MONITORING, PUBLIC, OR PRIVATE WELL LOCATION AND APPARENT LNAPL THICKNESS (FEET)

NOTE:

1) THE IDEALIZED LNAPL DISTRIBUTION SHOWN WAS INFERRED BASED ON MONITORING DATA FROM NOVEMBER 2005. AREAS WITH NO MEASURABLE LNAPL MAY OCCUR WITHIN THE MEASURABLE LNAPL AREA DEPICTED.

N

BASEMAP SOURCE:
HORIZONS, INC. RAPID, SD (1989)

0 200 400
APPROXIMATE SCALE IN FEET

Kennedy/Jenks Consultants

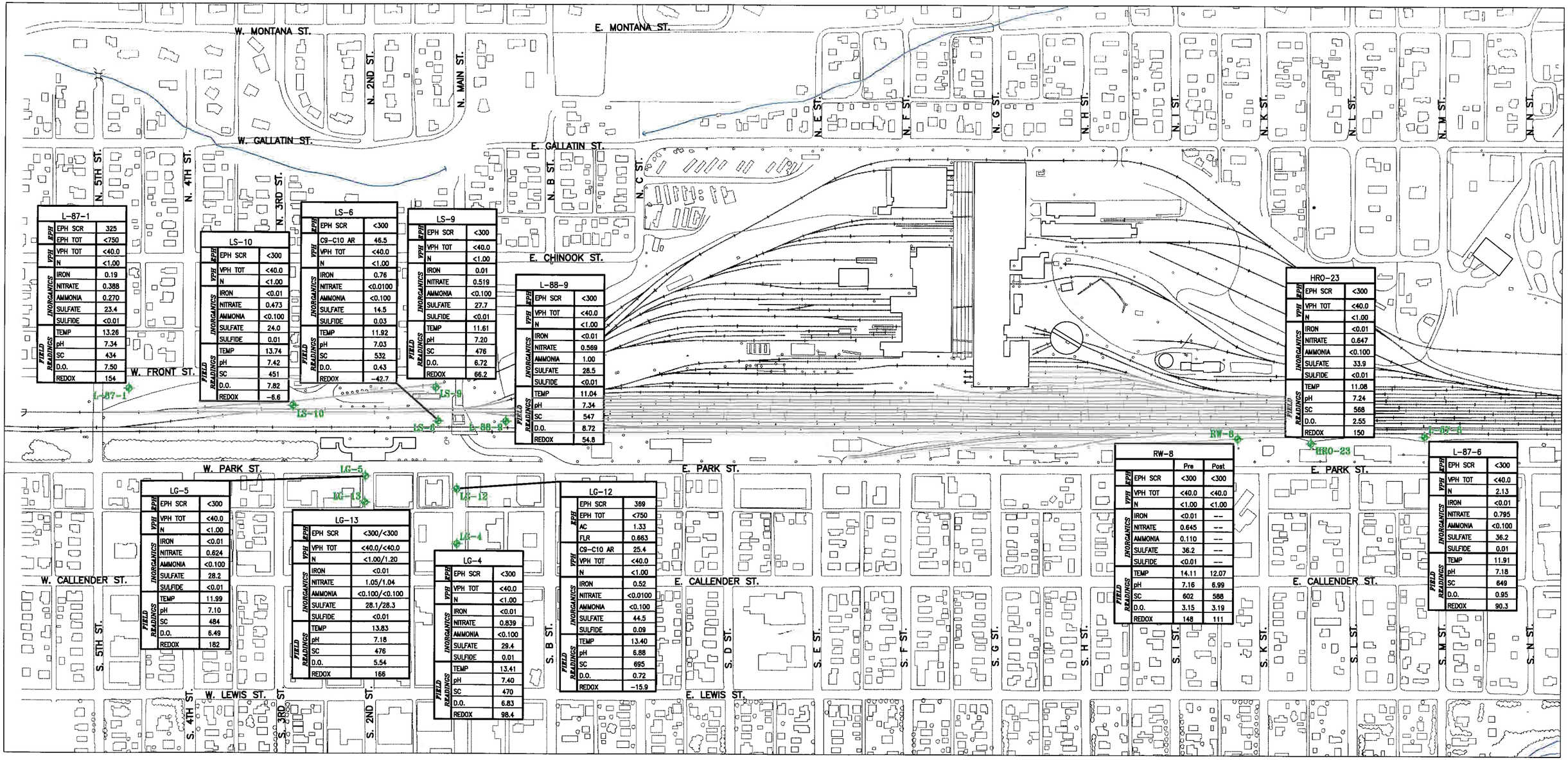
BURLINGTON NORTHERN LIVINGSTON SHOP COMPLEX – LIVINGSTON, MT

LNAPL MEASUREMENTS AND DISTRIBUTION - NOVEMBER 2005

0696021.16/ASR/FIGURE 6

3/06

FIGURE 6



L-87-1	
EPH SCR	325
EPH TOT	<750
VPH TOT	<40.0
N	<1.00
IRON	0.19
NITRATE	0.388
AMMONIA	0.270
SULFATE	23.4
SULFIDE	<0.01
TEMP	13.26
pH	7.34
SC	434
D.O.	7.50
REDOX	154

LS-10	
EPH SCR	<300
VPH TOT	<40.0
N	<1.00
IRON	<0.01
NITRATE	0.473
AMMONIA	<0.100
SULFATE	24.0
SULFIDE	0.01
TEMP	13.74
pH	7.42
SC	451
D.O.	7.82
REDOX	-6.6

LS-6	
EPH SCR	<300
C9-C10 AR	46.5
VPH TOT	<40.0
N	<1.00
IRON	0.76
NITRATE	<0.0100
AMMONIA	<0.100
SULFATE	14.5
SULFIDE	0.03
TEMP	11.92
pH	7.03
SC	532
D.O.	0.43
REDOX	-42.7

LS-9	
EPH SCR	<300
VPH TOT	<40.0
N	<1.00
IRON	0.01
NITRATE	0.519
AMMONIA	<0.100
SULFATE	27.7
SULFIDE	<0.01
TEMP	11.61
pH	7.20
SC	476
D.O.	6.72
REDOX	66.2

L-88-9	
EPH SCR	<300
VPH TOT	<40.0
N	<1.00
IRON	<0.01
NITRATE	0.569
AMMONIA	1.00
SULFATE	28.5
SULFIDE	<0.01
TEMP	11.04
pH	7.34
SC	547
D.O.	8.72
REDOX	54.8

HRO-23	
EPH SCR	<300
VPH TOT	<40.0
N	<1.00
IRON	<0.01
NITRATE	0.647
AMMONIA	<0.100
SULFATE	33.9
SULFIDE	<0.01
TEMP	11.08
pH	7.24
SC	568
D.O.	2.55
REDOX	150

RW-8	Pre	Post
EPH SCR	<300	<300
VPH TOT	<40.0	<40.0
N	<1.00	<1.00
IRON	<0.01	---
NITRATE	0.645	---
AMMONIA	0.110	---
SULFATE	36.2	---
SULFIDE	<0.01	---
TEMP	14.11	12.07
pH	7.16	6.99
SC	602	588
D.O.	3.15	3.19
REDOX	148	111

L-87-6	
EPH SCR	<300
VPH TOT	<40.0
N	2.13
IRON	<0.01
NITRATE	0.795
AMMONIA	<0.100
SULFATE	36.2
SULFIDE	0.01
TEMP	11.91
pH	7.18
SC	649
D.O.	0.95
REDOX	90.3

LG-5	
EPH SCR	<300
VPH TOT	<40.0
N	<1.00
IRON	<0.01
NITRATE	0.624
AMMONIA	<0.100
SULFATE	28.2
SULFIDE	<0.01
TEMP	11.99
pH	7.10
SC	484
D.O.	6.49
REDOX	182

LG-13	
EPH SCR	<300/<300
VPH TOT	<40.0/<40.0
N	<1.00/1.20
IRON	<0.01
NITRATE	1.05/1.04
AMMONIA	<0.100/<0.100
SULFATE	28.1/28.3
SULFIDE	<0.01
TEMP	13.83
pH	7.18
SC	476
D.O.	5.54
REDOX	166

LG-4	
EPH SCR	<300
VPH TOT	<40.0
N	<1.00
IRON	<0.01
NITRATE	0.839
AMMONIA	<0.100
SULFATE	29.4
SULFIDE	0.01
TEMP	13.41
pH	7.40
SC	470
D.O.	6.83
REDOX	98.4

LG-12	
EPH SCR	369
EPH TOT	<750
AC	1.33
FLR	0.663
C9-C10 AR	25.4
VPH TOT	<40.0
N	<1.00
IRON	0.52
NITRATE	<0.0100
AMMONIA	<0.100
SULFATE	44.5
SULFIDE	0.09
TEMP	13.40
pH	6.88
SC	695
D.O.	0.72
REDOX	-15.9

LEGEND

LS-6	
EPH SCR	<300
C9-C10 AR	46.5
VPH TOT	<40.0
N	<1.00
IRON	0.76
NITRATE	<0.0100
AMMONIA	<0.100
SULFATE	14.5
SULFIDE	0.03
TEMP	11.92
pH	7.03
SC	532
D.O.	0.43
REDOX	-42.7

WELL DESIGNATION WITH DETECTED EPH, VPH, AND PAHs (ug/L), AND INORGANICS (mg/L), AND FIELD READINGS FOR THE MARCH 2005 SAMPLING EVENT.

⊕ – MONITORING WELL LOCATION

EPH	EXTRACTABLE PETROLEUM HYDROCARBONS
EPH SCR	EPH SCREEN
EPH TOT	TOTAL EPH
VPH	VOLATILE PETROLEUM HYDROCARBONS
VPH TOT	TOTAL VPH
C9-C10 AR	C9 TO C10 AROMATICS
PAHs	POLYNUCLEAR AROMATIC HYDROCARBONS
AC	ACENAPHTHENE
FLR	FLUORENE
N	NAPHTHALENE
IRON	FERROUS IRON
NITRATE	NITRATE + NITRATE REPORTED AS NITROGEN
AMMONIA	AMMONIA REPORTED AS NITROGEN
TEMP	TEMPERATURE (DEGREES CELSIUS)
SC	SPECIFIC CONDUCTANCE (uS)
D.O.	DISSOLVED OXYGEN (mg/L)
REDOX	REDUCTION OXIDATION POTENTIAL (mV)

NOTE:

1. WHERE TWO RESULTS ARE SHOWN THE SECOND RESULT IS FOR A FIELD DUPLICATE SAMPLE.

N

0 200 400

APPROXIMATE SCALE IN FEET

Kennedy/Jenks Consultants

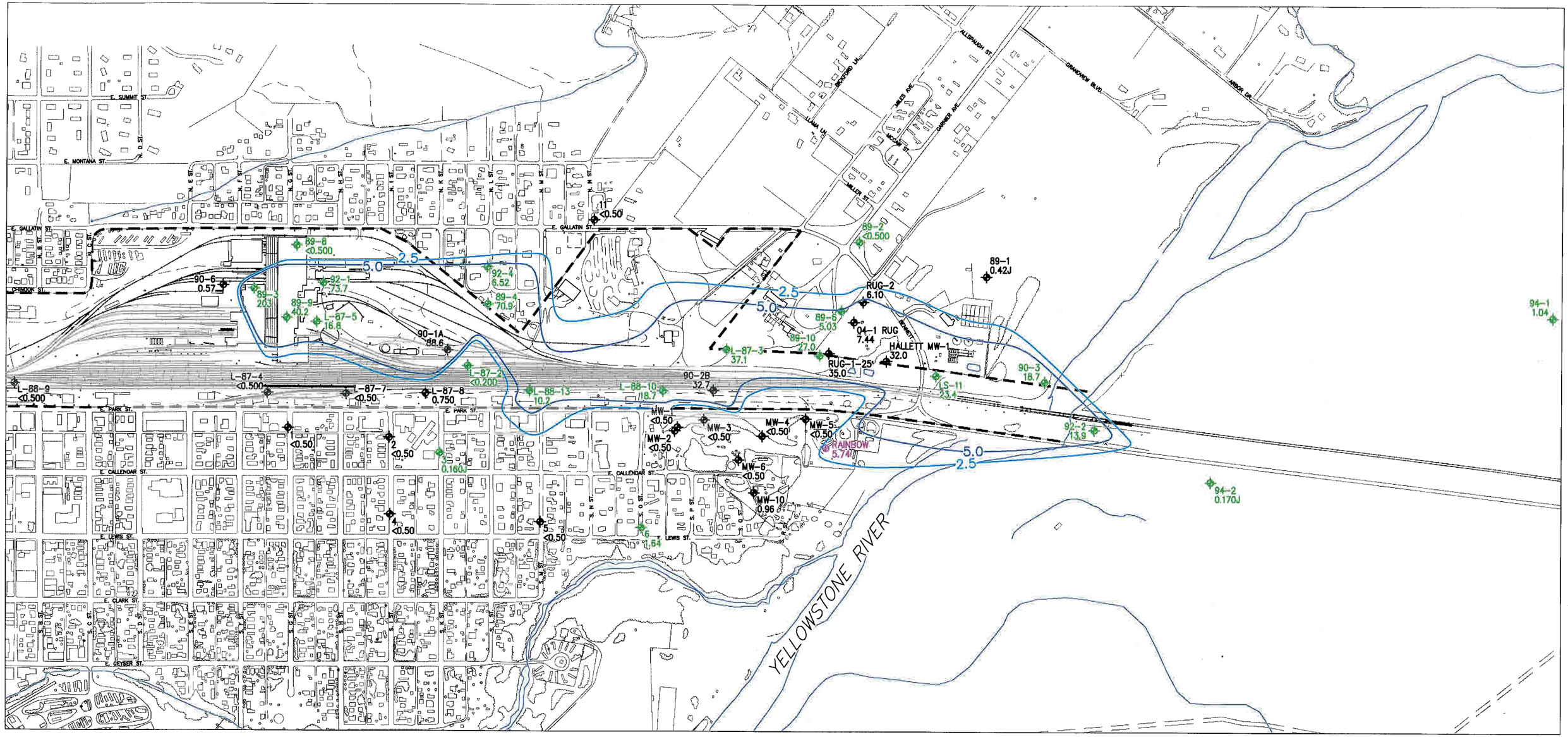
BURLINGTON NORTHERN LIVINGSTON SHOP COMPLEX – LIVINGSTON, MT

DISSOLVED-PHASE PETROLEUM AND NATURAL ATTENUATION ANALYTICAL RESULTS - MARCH 2005

0696021.16/ASR/FIGURE 7

3/06

FIGURE 7



LEGEND

L-88-10 18.7 — MONITORING WELL AND PCE CONCENTRATION IN MICROGRAMS PER LITER (µg/L) – JUNE 2005

L-87-7 <0.50 — MONITORING WELL AND PCE CONCENTRATION (µg/L) NOT SAMPLED FOR PCE DURING JUNE 2005 EVENT; THEREFORE, MOST RECENT DATA AVAILABLE USED

RAINBOW 5.74 — PRIVATE WELL LOCATION AND PCE CONCENTRATION (µg/L) – JUNE 2005

"<" — INDICATES NO PCE DETECTED

– – – – – – LIVINGSTON RAILYARD BOUNDARY

2.5 — ESTIMATED PCE ISOCONCENTRATION CONTOUR (µg/L)

5.0 — ESTIMATED ISOCONCENTRATION CONTOUR FOR PCE CLEANUP LEVEL PER THE RECORD OF DECISION (µg/L)

NOTES:

1) THE ISOCONCENTRATION CONTOURS SHOWN ON THIS DRAWING ARE INTENDED TO PROVIDE A GENERALIZED REPRESENTATION OF POTENTIAL SITE CONDITIONS AT ANY GIVEN TIME DURING THE PERIOD DURING WHICH DATA USED TO GENERATE THE MAP WERE ACQUIRED. **CONTOURS DEPICTED WERE COMPUTER GENERATED USING ARC/INFO pc–TIN 3.4D BASED ON AVAILABLE DATA POINTS AND, THEREFORE, INCLUDE ANOMALIES THAT ARE NOT CONSISTENT WITH THE EXPECTED ACTUAL CHEMICAL CONCENTRATION DISTRIBUTION IN GROUNDWATER.** THE ACTUAL DISTRIBUTION OF CHEMICAL CONCENTRATIONS IN GROUNDWATER CANNOT BE ACCURATELY DEPICTED USING TWO–DIMENSIONAL CONTOURING AND ESTIMATION METHODS SUCH AS THOSE USED TO PREPARE THIS DRAWING. THIS DRAWING IS INTENDED TO SERVE ONLY AS A GENERALIZED OR IDEALIZED REPRESENTATION OF SITE CONDITIONS TO ASSIST THE VIEWER IN VISUALIZING SITE CONDITIONS. THE CONTOURS DO NOT REPRESENT ANY PARTICULAR STATISTICAL CERTAINTY OF THE PRESENCE OR ABSENCE OF DETECTABLE CHEMICAL CONCENTRATIONS IN GROUNDWATER AT THE LOCATIONS SHOWN, NOR IS ANY WARRANTY OR GUARANTY, EXPRESSED OR IMPLIED, MADE BY KENNEDY/JENKS CONSULTANTS OR BNSF WITH RESPECT TO THE ACCURACY OF THIS DRAWING.

0 350 700

APPROXIMATE SCALE IN FEET

N

BASEMAP SOURCE:

HORIZONS, INC. RAPID, SD (1989)

Kennedy/Jenks Consultants

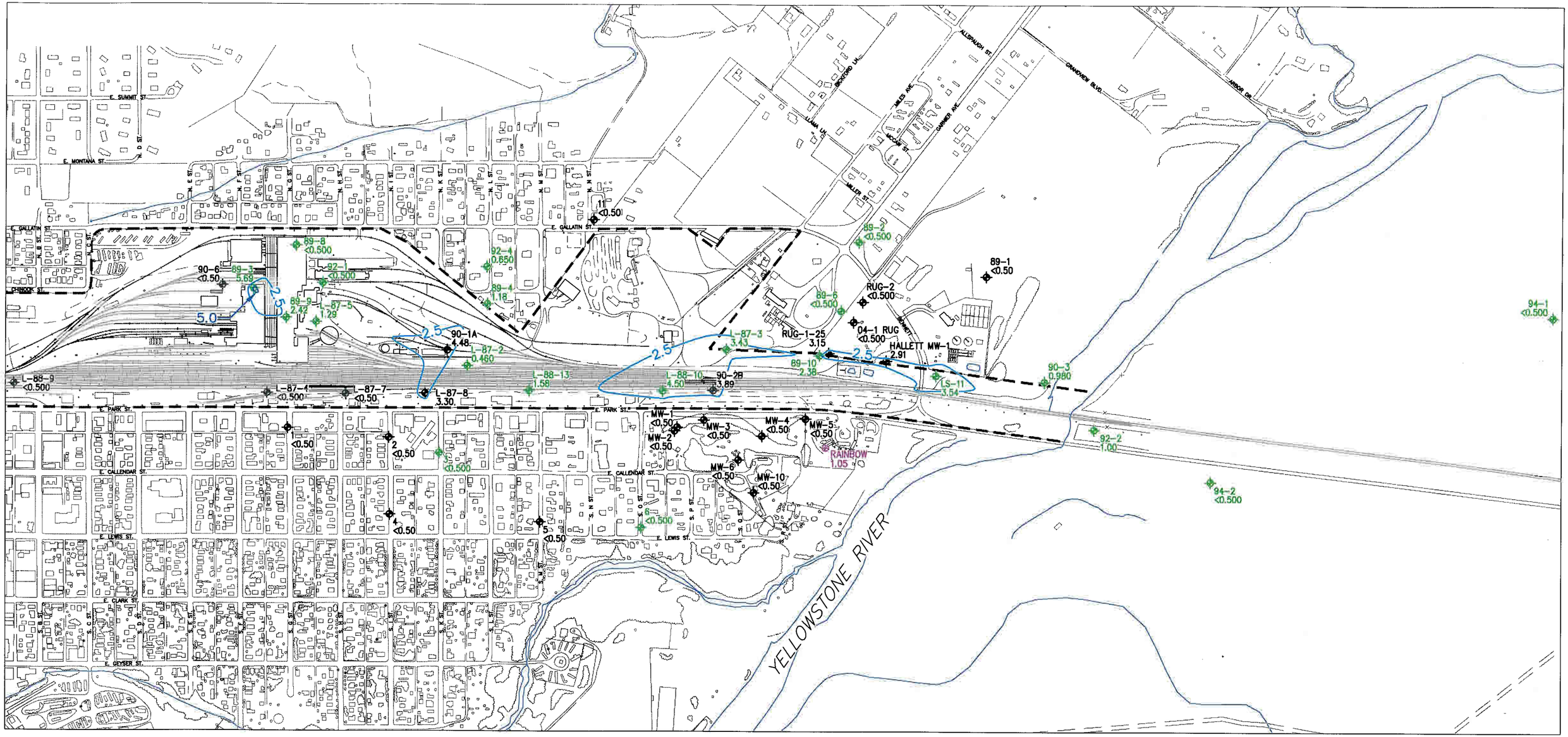
BURLINGTON NORTHERN LIVINGSTON SHOP COMPLEX – LIVINGSTON, MT

TETRACHLOROETHENE (PCE) CONCENTRATIONS AND DISTRIBUTION JUNE 2005

0696021.16/ASR/FIGURE 8

3/06

FIGURE 8



LEGEND

- 89-4 / 1.18 — MONITORING WELL AND TCE CONCENTRATION IN MICROGRAMS PER LITER (µg/L) – JUNE 2005
- 1 / <0.50 — MONITORING WELL AND TCE CONCENTRATION (µg/L) NOT SAMPLED FOR TCE DURING JUNE 2005 EVENT; THEREFORE, MOST RECENT DATA AVAILABLE USED
- RAINBOW 1.05 — PRIVATE WELL LOCATION AND TCE CONCENTRATION (µg/L) – JUNE 2005
- "<" — INDICATES NO TCE DETECTED
- – – – – – LIVINGSTON RAILYARD BOUNDARY
- 2.5 — ESTIMATED TCE ISOCONCENTRATION CONTOUR (µg/L)
- 5.0 — ESTIMATED ISOCONCENTRATION CONTOUR FOR TCE CLEANUP LEVEL PER THE RECORD OF DECISION (µg/L)

NOTES:

1) THE ISOCONCENTRATION CONTOURS SHOWN ON THIS DRAWING ARE INTENDED TO PROVIDE A GENERALIZED REPRESENTATION OF POTENTIAL SITE CONDITIONS AT ANY GIVEN TIME DURING THE PERIOD DURING WHICH DATA USED TO GENERATE THE MAP WERE ACQUIRED. **CONTOURS DEPICTED WERE COMPUTER GENERATED USING ARC/INFO pc–TIN 3.4D BASED ON AVAILABLE DATA POINTS AND, THEREFORE, INCLUDE ANOMALIES THAT ARE NOT CONSISTENT WITH THE EXPECTED ACTUAL CHEMICAL CONCENTRATION DISTRIBUTION IN GROUNDWATER.** THE ACTUAL DISTRIBUTION OF CHEMICAL CONCENTRATIONS IN GROUNDWATER CANNOT BE ACCURATELY DEPICTED USING TWO–DIMENSIONAL CONTOURING AND ESTIMATION METHODS SUCH AS THOSE USED TO PREPARE THIS DRAWING. THIS DRAWING IS INTENDED TO SERVE ONLY AS A GENERALIZED OR IDEALIZED REPRESENTATION OF SITE CONDITIONS TO ASSIST THE VIEWER IN VISUALIZING SITE CONDITIONS. THE CONTOURS DO NOT REPRESENT ANY PARTICULAR STATISTICAL CERTAINTY OF THE PRESENCE OR ABSENCE OF DETECTABLE CHEMICAL CONCENTRATIONS IN GROUNDWATER AT THE LOCATIONS SHOWN, NOR IS ANY WARRANTY OR GUARANTY, EXPRESSED OR IMPLIED, MADE BY KENNEDY/JENKS CONSULTANTS OR BNSF WITH RESPECT TO THE ACCURACY OF THIS DRAWING.

0 350 700
APPROXIMATE SCALE IN FEET

N

BASEMAP SOURCE:
HORIZONS, INC. RAPID, SD (1989)

Kennedy/Jenks Consultants

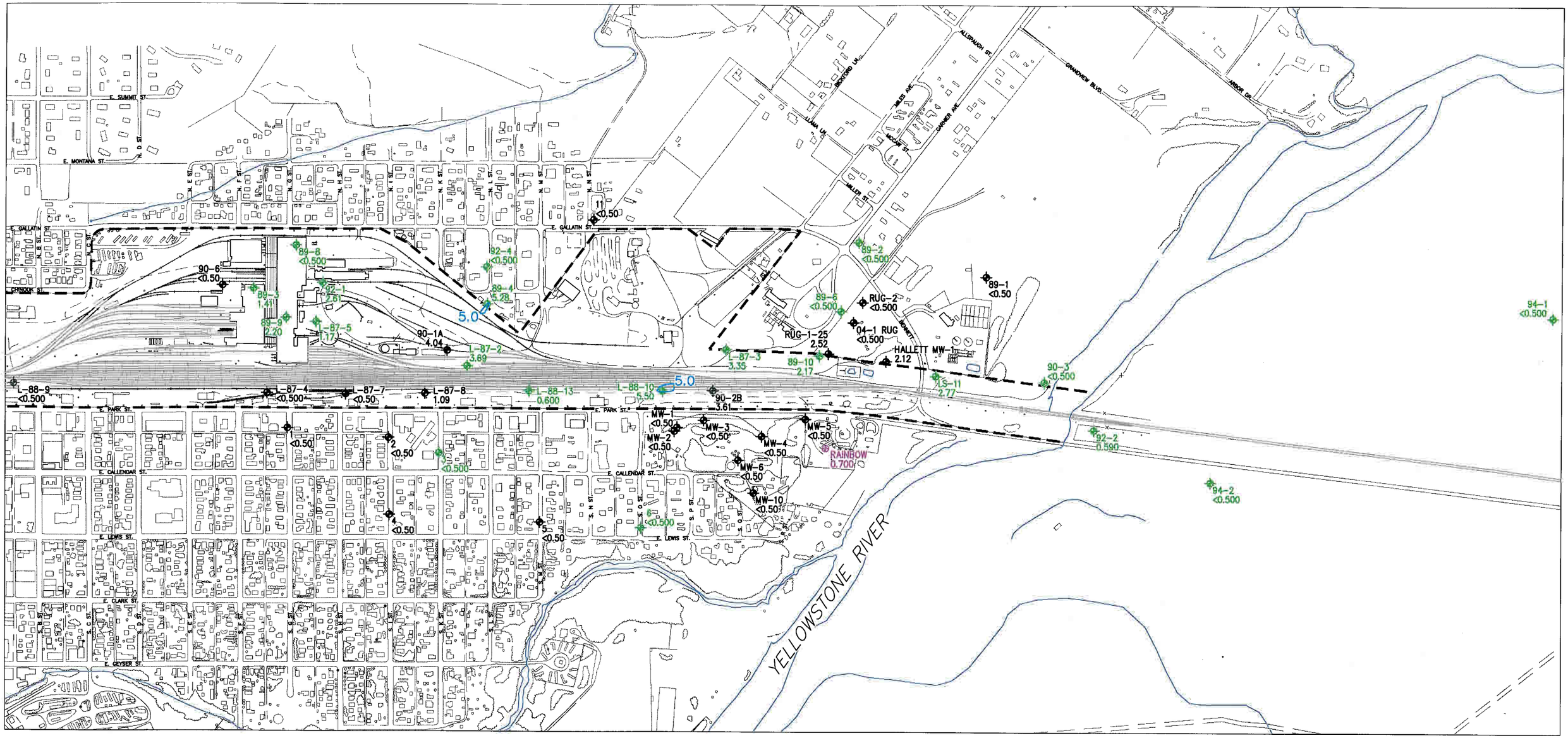
BURLINGTON NORTHERN LIVINGSTON SHOP COMPLEX – LIVINGSTON, MT

TRICHLOROETHENE (TCE) CONCENTRATIONS AND DISTRIBUTION JUNE 2005

0696021.16/ASR/FIGURE 9

3/06

FIGURE 9



LEGEND

89-4 5.28 — MONITORING WELL AND cis-1,2-DCE CONCENTRATION IN MICROGRAMS PER LITER (µg/L) – JUNE 2005

1 <0.50 — MONITORING WELL AND cis-1,2-DCE CONCENTRATION (µg/L) NOT SAMPLED FOR cis-1,2-DCE DURING JUNE 2005 EVENT; THEREFORE, MOST RECENT DATA AVAILABLE USED

RAINBOW 0.700 — PRIVATE WELL LOCATION AND cis-1,2-DCE CONCENTRATION (µg/L) – JUNE 2005

"<" — INDICATES NO cis-1,2-DCE DETECTED

LIVINGSTON RAILYARD BOUNDARY

5.0 — ESTIMATED cis-1,2-DCE ISOCONCENTRATION CONTOUR (µg/L)

NOTES:

1) THE ISOCONCENTRATION CONTOURS SHOWN ON THIS DRAWING ARE INTENDED TO PROVIDE A GENERALIZED REPRESENTATION OF POTENTIAL SITE CONDITIONS AT ANY GIVEN TIME DURING THE PERIOD DURING WHICH DATA USED TO GENERATE THE MAP WERE ACQUIRED. **CONTOURS DEPICTED WERE COMPUTER GENERATED USING ARC/INFO pc-TIN 3.4D BASED ON AVAILABLE DATA POINTS AND, THEREFORE, INCLUDE ANOMALIES THAT ARE NOT CONSISTENT WITH THE EXPECTED ACTUAL CHEMICAL CONCENTRATION DISTRIBUTION IN GROUNDWATER.** THE ACTUAL DISTRIBUTION OF CHEMICAL CONCENTRATIONS IN GROUNDWATER CANNOT BE ACCURATELY DEPICTED USING TWO-DIMENSIONAL CONTOURING AND ESTIMATION METHODS SUCH AS THOSE USED TO PREPARE THIS DRAWING. THIS DRAWING IS INTENDED TO SERVE ONLY AS A GENERALIZED OR IDEALIZED REPRESENTATION OF SITE CONDITIONS TO ASSIST THE VIEWER IN VISUALIZING SITE CONDITIONS. THE CONTOURS DO NOT REPRESENT ANY PARTICULAR STATISTICAL CERTAINTY OF THE PRESENCE OR ABSENCE OF DETECTABLE CHEMICAL CONCENTRATIONS IN GROUNDWATER AT THE LOCATIONS SHOWN, NOR IS ANY WARRANTY OR GUARANTY, EXPRESSED OR IMPLIED, MADE BY KENNEDY/JENKS CONSULTANTS OR BNSF WITH RESPECT TO THE ACCURACY OF THIS DRAWING.

0 350 700
APPROXIMATE SCALE IN FEET

N

BASEMAP SOURCE:
HORIZONS, INC. RAPID, SD (1989)

Kennedy/Jenks Consultants

BURLINGTON NORTHERN LIVINGSTON SHOP COMPLEX – LIVINGSTON, MT

cis-1,2-DICHLOROETHENE (cis-1,2-DCE) CONCENTRATIONS AND DISTRIBUTION JUNE 2005

0696021.16/ASR/FIGURE 10

3/06

FIGURE 10

LEGEND

- L-88-10 24.9 — MONITORING WELL AND PCE CONCENTRATION IN MICROGRAMS PER LITER (µg/L) – NOVEMBER 2005
- L-87-7 <0.50 — MONITORING WELL AND PCE CONCENTRATION (µg/L) NOT SAMPLED FOR PCE DURING NOVEMBER 2005 EVENT; THEREFORE, MOST RECENT DATA AVAILABLE USED
- 12R03 38.2 — PRIVATE WELL LOCATION AND PCE CONCENTRATION (µg/L) – NOVEMBER 2005
- "<" — INDICATES NO PCE DETECTED
- LIVINGSTON RAILYARD BOUNDARY
- 2.5 — ESTIMATED PCE ISOCONCENTRATION CONTOUR (µg/L)
- 5.0 — ESTIMATED ISOCONCENTRATION CONTOUR FOR PCE CLEANUP LEVEL PER THE RECORD OF DECISION (µg/L)

0 350 700
APPROXIMATE SCALE IN FEET

NOTES:

1) THE ISOCONCENTRATION CONTOURS SHOWN ON THIS DRAWING ARE INTENDED TO PROVIDE A GENERALIZED REPRESENTATION OF POTENTIAL SITE CONDITIONS AT ANY GIVEN TIME DURING THE PERIOD DURING WHICH DATA USED TO GENERATE THE MAP WERE ACQUIRED. **CONTOURS DEPICTED WERE COMPUTER GENERATED USING ARC/INFO pc–TIN 3.4D BASED ON AVAILABLE DATA POINTS AND, THEREFORE, INCLUDE ANOMALIES THAT ARE NOT CONSISTENT WITH THE EXPECTED ACTUAL CHEMICAL CONCENTRATION DISTRIBUTION IN GROUNDWATER.** THE ACTUAL DISTRIBUTION OF CHEMICAL CONCENTRATIONS IN GROUNDWATER CANNOT BE ACCURATELY DEPICTED USING TWO–DIMENSIONAL CONTOURING AND ESTIMATION METHODS SUCH AS THOSE USED TO PREPARE THIS DRAWING. THIS DRAWING IS INTENDED TO SERVE ONLY AS A GENERALIZED OR IDEALIZED REPRESENTATION OF SITE CONDITIONS TO ASSIST THE VIEWER IN VISUALIZING SITE CONDITIONS. THE CONTOURS DO NOT REPRESENT ANY PARTICULAR STATISTICAL CERTAINTY OF THE PRESENCE OR ABSENCE OF DETECTABLE CHEMICAL CONCENTRATIONS IN GROUNDWATER AT THE LOCATIONS SHOWN, NOR IS ANY WARRANTY OR GUARANTY, EXPRESSED OR IMPLIED, MADE BY KENNEDY/JENKS CONSULTANTS OR BNSF WITH RESPECT TO THE ACCURACY OF THIS DRAWING.

N

BASEMAP SOURCE:
HORIZONS, INC. RAPID, SD (1989)

Kennedy/Jenks Consultants

BURLINGTON NORTHERN LIVINGSTON SHOP COMPLEX – LIVINGSTON, MT

TETRACHLOROETHENE (PCE) CONCENTRATIONS AND DISTRIBUTION NOVEMBER 2005

0696021.16/ASR/FIGURE 11

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FIGURE 11

LEGEND

- 89-4 / 1.38 — MONITORING WELL AND TCE CONCENTRATION IN MICROGRAMS PER LITER (µg/L) – NOVEMBER 2005
- <0.50 / 1 — MONITORING WELL AND TCE CONCENTRATION (µg/L) NOT SAMPLED FOR TCE DURING NOVEMBER 2005 EVENT; THEREFORE, MOST RECENT DATA AVAILABLE USED
- 12R03 / 1.53 — PRIVATE WELL LOCATION AND TCE CONCENTRATION (µg/L) – NOVEMBER 2005
- "<" — INDICATES NO TCE DETECTED
- LIVINGSTON RAILYARD BOUNDARY
- 2.5 — ESTIMATED TCE ISOCONCENTRATION CONTOUR (µg/L)
- 5.0 — ESTIMATED ISOCONCENTRATION CONTOUR FOR TCE CLEANUP LEVEL PER THE RECORD OF DECISION (µg/L)

0 350 700
APPROXIMATE SCALE IN FEET

NOTES:

1) THE ISOCONCENTRATION CONTOURS SHOWN ON THIS DRAWING ARE INTENDED TO PROVIDE A GENERALIZED REPRESENTATION OF POTENTIAL SITE CONDITIONS AT ANY GIVEN TIME DURING THE PERIOD DURING WHICH DATA USED TO GENERATE THE MAP WERE ACQUIRED. **CONTOURS DEPICTED WERE COMPUTER GENERATED USING ARC/INFO pc–TIN 3.4D BASED ON AVAILABLE DATA POINTS AND, THEREFORE, INCLUDE ANOMALIES THAT ARE NOT CONSISTENT WITH THE EXPECTED ACTUAL CHEMICAL CONCENTRATION DISTRIBUTION IN GROUNDWATER.** THE ACTUAL DISTRIBUTION OF CHEMICAL CONCENTRATIONS IN GROUNDWATER CANNOT BE ACCURATELY DEPICTED USING TWO–DIMENSIONAL CONTOURING AND ESTIMATION METHODS SUCH AS THOSE USED TO PREPARE THIS DRAWING. THIS DRAWING IS INTENDED TO SERVE ONLY AS A GENERALIZED OR IDEALIZED REPRESENTATION OF SITE CONDITIONS TO ASSIST THE VIEWER IN VISUALIZING SITE CONDITIONS. THE CONTOURS DO NOT REPRESENT ANY PARTICULAR STATISTICAL CERTAINTY OF THE PRESENCE OR ABSENCE OF DETECTABLE CHEMICAL CONCENTRATIONS IN GROUNDWATER AT THE LOCATIONS SHOWN, NOR IS ANY WARRANTY OR GUARANTY, EXPRESSED OR IMPLIED, MADE BY KENNEDY/JENKS CONSULTANTS OR BNSF WITH RESPECT TO THE ACCURACY OF THIS DRAWING.

BASEMAP SOURCE:
HORIZONS, INC. RAPID, SD (1989)

Kennedy/Jenks Consultants

BURLINGTON NORTHERN LIVINGSTON SHOP COMPLEX – LIVINGSTON, MT

TRICHLOROETHENE (TCE) CONCENTRATIONS AND DISTRIBUTION NOVEMBER 2005

0696021.16/ASR/FIGURE 12

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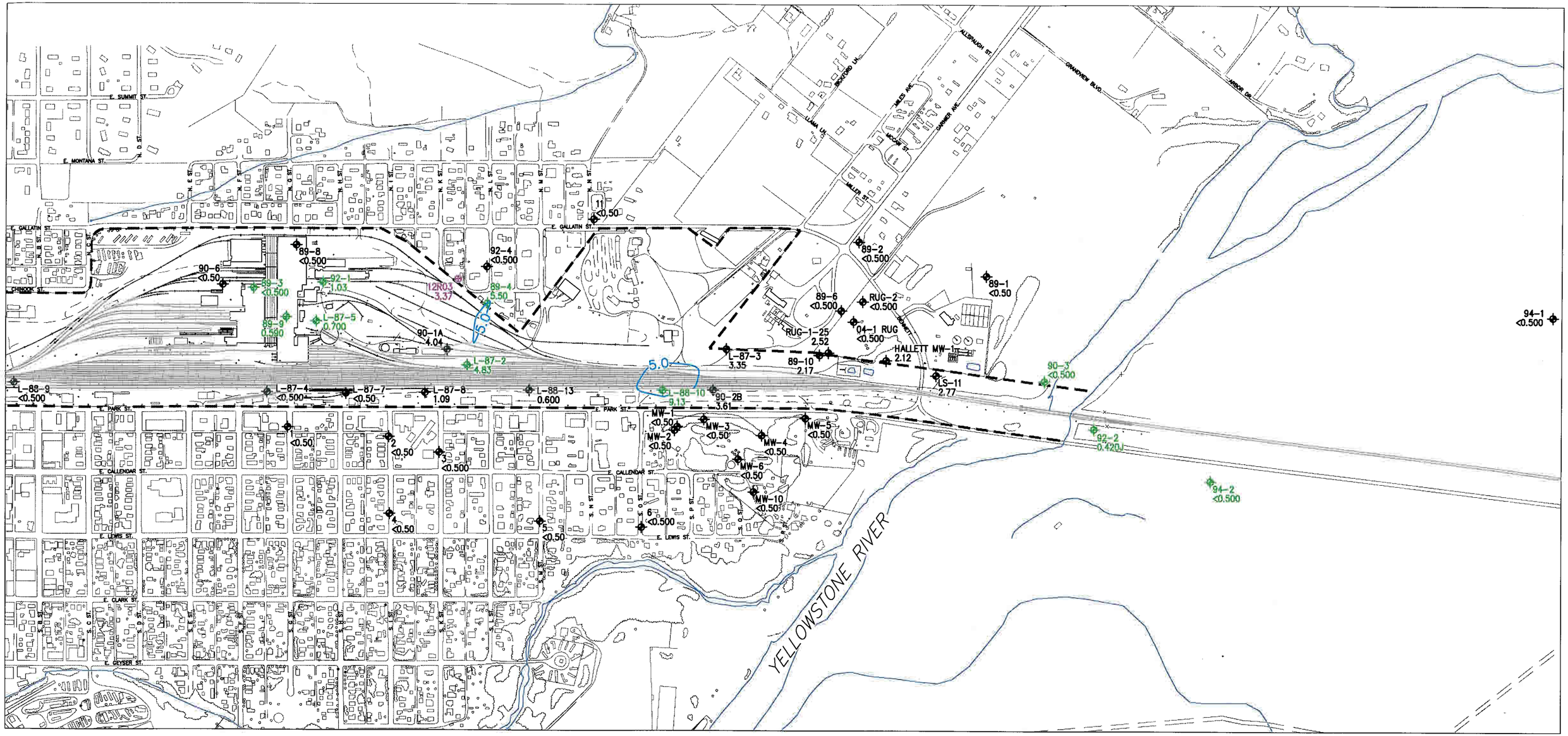
FIGURE 12



LEGEND

- 89-4 5.50 — MONITORING WELL AND cis-1,2-DCE CONCENTRATION IN MICROGRAMS PER LITER (µg/L) – NOVEMBER 2005
- <0.50 [1] — MONITORING WELL AND cis-1,2-DCE CONCENTRATION (µg/L) NOT SAMPLED FOR cis-1,2-DCE DURING NOVEMBER 2005 EVENT; THEREFORE, MOST RECENT DATA AVAILABLE USED
- 12R03 3.37 — PRIVATE WELL LOCATION AND cis-1,2-DCE CONCENTRATION (µg/L) – NOVEMBER 2005
- "<" — INDICATES NO cis-1,2-DCE DETECTED
- LIVINGSTON RAILYARD BOUNDARY
- 5.0 — ESTIMATED cis-1,2-DCE ISOCONCENTRATION CONTOUR (µg/L)

NOTES:

1) THE ISOCONCENTRATION CONTOURS SHOWN ON THIS DRAWING ARE INTENDED TO PROVIDE A GENERALIZED REPRESENTATION OF POTENTIAL SITE CONDITIONS AT ANY GIVEN TIME DURING THE PERIOD DURING WHICH DATA USED TO GENERATE THE MAP WERE ACQUIRED. **CONTOURS DEPICTED WERE COMPUTER GENERATED USING ARC/INFO pc–TIN 3.4D BASED ON AVAILABLE DATA POINTS AND, THEREFORE, INCLUDE ANOMALIES THAT ARE NOT CONSISTENT WITH THE EXPECTED ACTUAL CHEMICAL CONCENTRATION DISTRIBUTION IN GROUNDWATER.** THE ACTUAL DISTRIBUTION OF CHEMICAL CONCENTRATIONS IN GROUNDWATER CANNOT BE ACCURATELY DEPICTED USING TWO–DIMENSIONAL CONTOURING AND ESTIMATION METHODS SUCH AS THOSE USED TO PREPARE THIS DRAWING. THIS DRAWING IS INTENDED TO SERVE ONLY AS A GENERALIZED OR IDEALIZED REPRESENTATION OF SITE CONDITIONS TO ASSIST THE VIEWER IN VISUALIZING SITE CONDITIONS. THE CONTOURS DO NOT REPRESENT ANY PARTICULAR STATISTICAL CERTAINTY OF THE PRESENCE OR ABSENCE OF DETECTABLE CHEMICAL CONCENTRATIONS IN GROUNDWATER AT THE LOCATIONS SHOWN, NOR IS ANY WARRANTY OR GUARANTY, EXPRESSED OR IMPLIED, MADE BY KENNEDY/JENKS CONSULTANTS OR BNSF WITH RESPECT TO THE ACCURACY OF THIS DRAWING.

N

0 350 700

APPROXIMATE SCALE IN FEET

BASEMAP SOURCE:

HORIZONS, INC. RAPID, SD (1989)

Kennedy/Jenks Consultants

BURLINGTON NORTHERN LIVINGSTON SHOP COMPLEX – LIVINGSTON, MT

cis-1,2-DICHLOROETHENE (cis-1,2-DCE) CONCENTRATIONS AND DISTRIBUTION NOVEMBER 2005

0696021.16/ASR/FIGURE 13

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FIGURE 13